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Page 1 of 1

ications: Hirudin

## HIRUDIN

Hirudin is a 65 amino-acid cysteine-rich polypeptide, produced by the salivary gland of the medicinal leech, which is now produced as a recombinant molecule.

Hirudin binds tightly to thrombin at thrombin's accessory binding site and acts as a thrombin antagonist.

Recombinant hirudin (Lepirudan or Refludan®) is recently FDA-approved for use in patients with heparin-induced thrombocytopenia/thrombosis syndromes. In general, monitoring of patients on this therapy is done by following the aPTT. However, the PT is also affected, making initiation of warfarin therapy difficult. Lepirudan accumulates with renal insufficiency, and about 40% of patients on long-term therapy will develop antibodies directed against the hirudin:thrombin complex. These antibodies tend to develop after 7-10 days of therapy and increase the anti-thrombotic effect of the drug.

Other synthetic thrombin inhibitors, such as **argatroban (novastan)**, and Xa inhibitors are in various stages of development as new anti-thrombotic agents.





AAPS PharmSciTech 2000; 1 (1) article 3 (http://www.pharmscitech.com)

## The Stabilization and Release of Hirudin from Liposomes or Lipid-Assemblies Coated with Hydrophobically Modified Dextran

Submitted: January 10, 2000; Accepted: March 1, 2000

Russell J. Mumper<sup>1</sup>\* and Allan S. Hoffman<sup>2</sup>

<sup>1</sup>Center for Pharmaceutical Science & Technology, College of Pharmacy, University of Kentucky, Lexington, Kentucky 40536-0082

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**ABSTRACT** Hirudin is a 65– amino acid peptide and the most potent and specific known inhibitor of thrombin ( $K_i = 0.2 \text{ pM}$ ). The short elimination half-life of hirudin from the body (1 hour) necessitates the use of a sustained and controlled delivery system.

A proliposome method was used to entrap hirudin in liposomes coated with palmitoyl dextran-coated liposomes and lipid-assemblies. In vitro release studies of hirudin were performed using the lipid systems enclosed in dialysis membranes or deposited in the pores of a vascular graft. The activity of hirudin and released hirudin was measured using a thrombin chromogenic substrate assay.

Entrapment efficiencies of hirudin in lipid-assemblies approached 100%, however, the release of hirudin from these systems was rapid with 90% released in 17 hours. Entrapment efficiencies of hirudin in coated-liposomes ranged from 5% to 55% and were dependent on several variables. Palmitoyl dextrancoated-liposomes showed a burst of 30% hirudin released in 5 hours with an additional 10% to 35% released over the next 600 hours. In all samples, 30-40% of the hirudin remained associated with the lipid-systems even after 600 hours. The released hirudin retained only 33% of its ability to inhibit thrombin when released from uncoated liposomes. However, hirudin retained 95% of its thrombin inhibitory activity when released from palmitoyl dextran- coated liposomes.

Coated liposomes were found to stabilize hirudin and result in greater retention of hirudin's ability to inhibit thrombin's enzymatic activity, although the mechanism is not yet understood. **KEYWORDS:** hirudin, stabilization, in vitro release, liposomes, thrombin, dextran, vascular graft

### INTRODUCTION

Hirudin, a 65- amino acid peptide (MW 7000), is the most potent and specific known inhibitor of thrombin  $(K_i = 0.2 \text{ pM})$ . It was originally isolated from medicinal leeches (Hirudo medicinalis) in the late 1950s, but can now be made by recombinant techniques. Recombinant hirudin (REVASC<sup>TM</sup>) has recently been approved in Europe for the prevention of deep-vein thrombosis following knee and hip replacement surgery. The short elimination half-life of hirudin from the body (1 hour) necessitates the use of a sustained and controlled delivery system. Hirudin has been considered as an alternative to heparin for a variety of reasons [1-3]. Other investigators have looked at ways to retard its rapid elimination from the blood, including coupling it to high molecular weight carriers such as dextran [4]. The chemical immobilization of hirudin on polymer surfaces for use as thromboresistant biomaterials has been investigated [5]. Oral delivery of hirudin via liposome systems has also been studied [6].

In this work, hirudin was encapsulated into two different lipid delivery systems: coated-liposomes and lipid-assemblies. The lipid delivery systems were composed of phospholipids combined with one of two hydrophobically modified polysaccharides, either palmitoyl-dextran (PalD) or palmitoyl-dextran phosphate (PalDP). In an aqueous environment, these hydrophobically modified polysaccharides (ie, conjugates) self-associate to form hydrophobic

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**Search Results -** Record(s) 1 through 57 of 57 returned.

☐ 1. Document ID: US 20040023379 A1

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8: Entry 1 of 57

File: PGPB

Feb 5, 2004

B-DOCUMENT-NUMBER: 20040023379

B-FILING-TYPE: new

MENT-IDENTIFIER: US 20040023379 A1

E: Antisense modulation of hepatoma-derived growth factor expression

Carlsbad

ICATION-DATE: February 5, 2004

NTOR-INFORMATION:

CITY STATE COUNTRY RULE-47

US

nett, C. Frank ie, Kenneth W.

Del Mar CA US

CA

L-CURRENT: 435/375; 514/44, 536/23.2

Full Title Citation Front Review Classification Date Reference Sequences Attachments Claims KMC Draw Desc Image

☐ 2. Document ID: US 20030211296 A1

8: Entry 2 of 57

File: PGPB

Nov 13, 2003

B-DOCUMENT-NUMBER: 20030211296

B-FILING-TYPE: new

MENT-IDENTIFIER: US 20030211296 A1

E: Identification card printed with jet inks and systems and methods of making same

ICATION-DATE: November 13, 2003

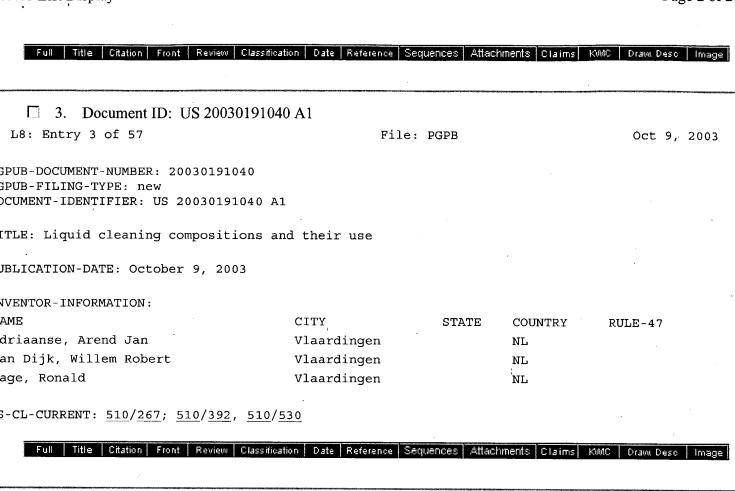
NTOR-INFORMATION:

CITY STATE COUNTRY RULE-47
es, Robert Andover MA US

Daoshen Boxborough MA US

lloux, Dennis Westminster MA US

L-CURRENT: 428/195.1; 503/200



☐ 4. Document ID:	US 20030162224 A1			
L8: Entry 4 of 57		File: PGPB		Aug 28, 2003
PUB-DOCUMENT-NUMBER: 2 PUB-FILING-TYPE: new OCUMENT-IDENTIFIER: US				
TLE: Characterization	of molecules			
JBLICATION-DATE: August	28, 2003			
VENTOR-INFORMATION:				
	CITY	STATE	COUNTRY	RULE-47
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AME nait, Arnon	Bay Village	OH	US	

Full Title Citation Front Review Classification Date	Reference   Sequences   Attachments	Claims KWC Draw Desc Image
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☐ 5. Document ID: US 20030143700 A1		
L8: Entry 5 of 57	File: PGPB	Jul 31, 2003

Jul 31, 2003

PUB-DOCUMENT-NUMBER: 20030143700

PUB-FILING-TYPE: new

CUMENT-IDENTIFIER: US 20030143700 A1

TLE: Methods for producing optically active alcohols

BLICATION-DATE: July 31, 2003

VENTOR-INFORMATION:

CITY STATE ΜE COUNTRY RULE-47

mamoto, Hiroaki Ibaraki JΡ JΡ da, Momoko Ibaraki

n, Ritsuzui Niigata JΡ matani, Takeshi Niigata JΡ

-CL-CURRENT: 435/120; 435/155

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L8: Entry 6 of 57

File: PGPB Jul 17, 2003

PUB-DOCUMENT-NUMBER: 20030134325

PUB-FILING-TYPE: new

CUMENT-IDENTIFIER: US 20030134325 A1

TLE: Modified phycobilisomes and uses therefore

BLICATION-DATE: July 17, 2003

VENTOR-INFORMATION:

CITY ; STATE COUNTRY RULE-47

bicciotti, Roger S. Montclar ŊJ US

-CL-CURRENT: 435/7.1; 435/317.1

Full Title Citation Front Review Classification Date	Reference   Sequences   Attachments	Claims KWIC Draw Desc Image
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7. Document ID: US 20030109019 A1		,
8: Entry 7 of 57	File: PGPB	Jun 12, 2003

PUB-DOCUMENT-NUMBER: 20030109019

PUB-FILING-TYPE: new

CUMENT-IDENTIFIER: US 20030109019 A1

TLE: Mutant-type lipases and applications thereof

BLICATION-DATE: June 12, 2003

NTOR-INFORMATION:

CITY

STATE

COUNTRY

RULE-47

g, Rey-Chang

Kaohsiung

TW

, Shu-Jen

Taipei

TW

, Jei-Fu

Taipei

 $\mathbf{W}\mathbf{T}$ 

L-CURRENT: 435/198; 435/252.3, 435/320.1, 435/69.1, 536/23.2

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3: Entry 8 of 57

File: PGPB

May 8, 2003

B-DOCUMENT-NUMBER: 20030087375

B-FILING-TYPE: new

MENT-IDENTIFIER: US 20030087375 A1

E: Sperm specific proteins

ICATION-DATE: May 8, 2003

NTOR-INFORMATION:

**	CITY	STATE	COUNTRY	RULE-47
Zhonglin	Charlottesville	VA	US	
, John C.	Charlottesville	VA	US	
s, Friederike L.	Cary	NC	US	
ty, Jagathpala	Charlottesville	VA	US	
owicz, Michael J.	Charlottesville	VA	US	

L-CURRENT: <u>435/69.1</u>; <u>424/146.1</u>, <u>435/183</u>, <u>435/320.1</u>, <u>435/325</u>, <u>536/23.2</u>

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B: Entry 9 of 57

File: PGPB

Apr 24, 2003

B-DOCUMENT-NUMBER: 20030077693

B-FILING-TYPE: new

MENT-IDENTIFIER: US 20030077693 A1

E: Use of p97 and iron binding proteins as diagnostic and therapeutic agents

ICATION-DATE: April 24, 2003

NTOR-INFORMATION:

CITY

STATE

RULE-47

eries, Wilfred A.

South Surrey

CA

COUNTRY

er, Patrick L.

Vancouver

CA

henberger, Sylvia

**Epalinges** 

CH

d, Michael R.

Vancouver Tokyo

CA JΡ

ada, Tatsuo nard, Malcolm

Vancouver

CA

CL-CURRENT: 435/68.1; 435/7.23, 514/8

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File: PGPB

Apr 24, 2003

UB-DOCUMENT-NUMBER: 20030077435

UB-FILING-TYPE: new

UMENT-IDENTIFIER: US 20030077435 A1

LE: Novel coated membranes and other articles

LICATION-DATE: April 24, 2003

ENTOR-INFORMATION:

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CITY

STATE

COUNTRY

RULE-47

rkoudian, John

Carlisle

MA

US

ce, Neil P.

Merrimack

NH

US

CL-CURRENT: 428/304.4; 428/315.5

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∟8: Entry 11 of 57

File: PGPB

Mar 27, 2003

UB-DOCUMENT-NUMBER: 20030059402

UB-FILING-TYPE: new

UMENT-IDENTIFIER: US 20030059402 A1

LE: Aquespheres, their preparation and uses thereof

LICATION-DATE: March 27, 2003

ENTOR-INFORMATION:

CITY

STATE

COUNTRY

RULE-47

, Tuo , Hua Highland Park Plainsboro

NJ NJ US US

, Jiahao

Brooklyn

NY

US

CL-CURRENT: 424/93.2; 264/4.1, 424/491, 424/493, 424/85.5

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L8: Entry 14 of 57

File: PGPB

Dec 19, 2002

PUB-DOCUMENT-NUMBER: 20020192173

PUB-FILING-TYPE: new

CUMENT-IDENTIFIER: US 20020192173 A1

TLE: Anhydrous treatment compositions for the delivery of reactive agents to amino-acid based

ıbstrates

JBLICATION-DATE: December 19, 2002

IVENTOR-INFORMATION:

AME CITY STATE

COUNTRY RULE-47

lenn, Robert Wayne JR.

Surrey

OH

GB

orgerson, Peter Marte

Washington Courthouse

US

-CL-CURRENT: 424/70.1

Full Ti	tle Citation Front Re	eview Classification	Date Reference	Sequences	Attachments	Claims	KWIC	Draw, Desc	Image
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L8: Entry 15 of 57

File: PGPB

Dec 5, 2002

Dec 30, 2003

PUB-DOCUMENT-NUMBER: 20020178650

PUB-FILING-TYPE: new

CUMENT-IDENTIFIER: US 20020178650 A1

TLE: Low temperature stable diesel oil/alcohol mixtures

BLICATION-DATE: December 5, 2002

VENTOR-INFORMATION:

CITY

STATE

COUNTRY

RULE-47

cura, Michio

Kanata

CA

anciulescu, Maria

Orleans

CA

ogan, Edward

Ottawa

CA

-CL-CURRENT: 44/438

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Full Tit	le Citation Front Review Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw Desc	Image
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□ 16.	Document ID: US 6670438 B1								
T.O. 17-1-1-1	16 -5 50								
L8: Entry	16 OI 57		Fil	e: USPT				Dec 30, 2	2003

-PAT-NO: 6670438

CUMENT-IDENTIFIER: US 6670438 B1

TLE: Methods, compositions, and biomimetic catalysts for in vitro synthesis of silica,

olysilsequioxane, polysiloxane, and polymetallo-oxanes

ATE-ISSUED: December 30, 2003

VENTOR-INFORMATION:

CITY STATE ZIP CODE COUNTRY AME

orse; Daniel E. Santa Barbara CA

tucky; Galen D. Goleta CA

eming; Timothy D. Summerland CA

ha; Jennifer Goleta CA

himizu; Katsuhiko Tochigi JP

Goleta CA hou; Yan

S-CL-CURRENT:  $\underline{528/21}$ ;  $\underline{423/326}$ ,  $\underline{423/339}$ ,  $\underline{428/364}$ ,  $\underline{428/369}$ ,  $\underline{428/370}$ ,  $\underline{428/402}$ ,  $\underline{435/188.5}$ ,  $\underline{528/12}$ ,

<u>28/23, 528/39, 528/43</u>

Full Title Citation F	Front Review Classification	Date Reference	11.00	Claims KVMC	Draw Desc   Image
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☐ 17. Document ID: US 6635224 B1

L8: Entry 17 of 57 File: USPT Oct 21, 2003

S-PAT-NO: 6635224

OCUMENT-IDENTIFIER: US 6635224 B1

ITLE: Online monitor for polymer processes

ATE-ISSUED: October 21, 2003

**VVENTOR-INFORMATION:** 

AME CITY STATE ZIP CODE COUNTRY

ui; John Yupeng Niskayuna NY ilva; James Manio Clifton Park NY arnahan; James Claude Schenectady NY

ayer; Hugh Harrison Mt. Vernon IN

S-CL-CURRENT:  $\underline{422}/\underline{62}$ ;  $\underline{422}/\underline{68.1}$ ,  $\underline{422}/\underline{82.01}$ ,  $\underline{422}/\underline{82.02}$ ,  $\underline{422}/\underline{82.05}$ ,  $\underline{422}/\underline{82.06}$ ,  $\underline{422}/\underline{82.07}$ ,

 $\frac{22}{82.08}$ ,  $\frac{422}{82.09}$ ,  $\frac{436}{34}$ ,  $\frac{436}{43}$ ,  $\frac{436}{52}$ ,  $\frac{436}{85}$ 

Full T	ïtle	Citation	Front	Review	Classification	Date	Reference	100	Claims	KWMC	Draww Desc	Image
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			·····									

18. Document ID: US 6562788 B1

L8: Entry 18 of 57 File: USPT May 13, 2003

S-PAT-NO: 6562788

DCUMENT-IDENTIFIER: US 6562788 B1

ITLE: Topoisomerase II inhibitor

Jan 14, 2003

E-ISSUED: May 13, 2003

ENTOR-INFORMATION:

COUNTRY ίΕ CITY STATE ZIP CODE

rmandjian; Serge Meudon FR FR

ere-Gallois; Valerie Ivry sur Seine palen; Frederic Bourg la Reine FR

CL-CURRENT: <u>514/12</u>; <u>530/324</u>

Fu	II Ti	tle   Citation	Front	Review	Classification	Date	Reference	i i	Cla	ims	KWIC	Draw, Desc	Image
	19.	Documen	ıt ID:	US 655	9284 B1								

L8: Entry 19 of 57

File: USPT May 6, 2003

PAT-NO: 6559284

UMENT-IDENTIFIER: US 6559284 B1

LE: Process for purifying a protein

E-ISSUED: May 6, 2003

ENTOR-INFORMATION:

4E CITY STATE ZIP CODE COUNTRY

eland; Hans Bromma SE strom; Lena Stockholm SE

rsson; Josefine Lund SE erneld; Folke Malmo SE

CL-CURRENT: 530/359; 530/412, 530/421, 530/422, 530/424

Ful	T T	le Citation	Front	Review	Classification	Date	Reference		0	laims	KWMC	Drawii 1	Desc	Image
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П	20.	Documen	t ID·	US 650	6879 B1									

File: USPT

L8: Entry 20 of 57

PAT-NO: 6506879

UMENT-IDENTIFIER: US 6506879 B1

LE: Purified Apo A and Apo E compounds and methods for using them

E-ISSUED: January 14, 2003

ENTOR-INFORMATION:

CITY STATE ZIP CODE COUNTRY

eland; Hans Bromma SE

nander; Lena Nacka-Strand SE L-CURRENT: <u>530</u>/<u>359</u>; <u>435</u>/<u>69.1</u>, <u>435</u>/<u>71.1</u>

Full   Title   Citation   Front   Review   (	Classification   Date   Refe	rence of the terms	Claims	KWMC Draw Desc Image
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☐ 21. Document ID: US 6455	494 B1			
8: Entry 21 of 57		File: USPT		Sep 24, 2002
AT-NO: 6455494	-			
MENT-IDENTIFIER: US 6455494 E	31.			
E: Use of p97, and iron bindir	ng proteins as d	iagnostic and t	heraneutic ac	ente
- or or proposed	.s processio ab a	ragnobere and t	enclupeucic ag	CIICB
-ISSUED: September 24, 2002			{	
		•		
NTOR-INFORMATION:	,			
	CITY	STATE	ZIP CODE	COUNTRY
eries; Wilfred A.	South Surrey			CA
er; Patrick L.	Vancouver			CA
enberger; Sylvia	Epalinges			СН
; Michael R.	Vancouver			CA
da; Tatsuo	Tokyo		•	JP

			·								
Full Tit	e Citation	Front Review	Classification	Date	Reference	3.177	16	Claims	KMIC	Drawt Desc	Image
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□ 22	Document	ID: US 638	24008 B1								
	Document	ID. 05 050	7000 D1								
: Entry	22 of 57				F	ile: USPT				May 7,	2002

Vancouver

AT-NO: 6384008

ard; Malcolm

MENT-IDENTIFIER: US 6384008 B1

: Non-aqueous liquid detergent compositions containing ethoxylated quaternized amine clay ounds

ISSUED: May 7, 2002

TOR-INFORMATION:

CITY

STATE

ZIP CODE COUNTRY

CA

y; Diane 🔧

Cincinnati

ОН

-CURRENT: 510/414; 510/276, 510/289, 510/299, 510/300, 510/304, 510/320, 510/332, 510/338, 41, 510/351, 510/357, 510/371, 510/374, 510/392, 510/400, 510/407, 510/432, 510/499, 04

23. Document ID: US 6361775 B1

: Entry 23 of 57

File: USPT

Mar 26, 2002

T-NO: 6361775

MENT-IDENTIFIER: US 6361775 B1

: Compositions and methods for vaccines comprising .alpha.-galactosyl epitopes

ISSUED: March 26, 2002

TOR-INFORMATION:

CITY

STATE

ZIP CODE

COUNTRY

li; Uri

Wayne

PΑ

k; Patricia M.

West Trenton

NJ

-CURRENT: <u>424/184.1</u>; <u>424/155.1</u>, <u>424/156.1</u>, <u>424/218.1</u>, <u>424/277.1</u>, 424/278.1, 424/816,

87.1

Ful	T	itle Citation	Front	Review	Classification	Date	Reference		Claims	KWIC	Drawu Desc	Image	
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24. Document ID: US 6342389 B1

: Entry 24 of 57

File: USPT

Jan 29, 2002

T-NO: 6342389

MENT-IDENTIFIER: US 6342389 B1

2: Modified phycobilisomes and uses therefore

ISSUED: January 29, 2002

TOR-INFORMATION:

CITY

STATE

ZIP CODE

COUNTRY

cciotti; Roger S.

Montclair

NJ

07042

-CURRENT:  $\frac{435}{317.1}$ ;  $\frac{435}{4}$ ,  $\frac{435}{7.1}$ ,  $\frac{435}{7.2}$ ,  $\frac{435}{7.8}$ ,  $\frac{435}{963}$ ,  $\frac{436}{518}$ ,  $\frac{436}{519}$ ,  $\frac{436}{524}$ , 27, 436/536, 530/391.3, 530/402

Fu	l Ti	tle Citation	Front	Review	Classification	Date	Reference	100000	Claims	KWIC	Draw, Desc	Image
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									***********	***************************************		**************************************
	25.	Documen	nt ID:	US 624	1921 B1							

: Entry 25 of 57

File: USPT

Jun 5, 2001

T-NO: 6241921

ENT-IDENTIFIER: US 6241921 B1

: Heterogeneous display elements and methods for their fabrication

-ISSUED: June 5, 2001

NTOR-INFORMATION:

CITY

STATE

ZIP CODE

COUNTRY

obson; Joseph M.

Newton

MA

nizawa; Hidekazu

Brookline

L-CURRENT: 264/1.36; 264/1.7, 264/4.1, 264/437, 264/438

Full Tit	e Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Drawi Desc	Image
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□ 26.	Documer	t ID:	ÚS 611	0745 A								
8: Entry			00011		•	r: 1	le: USPT				Aug 29,	2000
o. Enery	20 01 37					r I .	ic. OSF1				Aug 23,	2000

AT-NO: 6110745

MENT-IDENTIFIER: US 6110745 A

E: Preparation of lipid-nucleic acid particles using a solvent extraction and direct ation method

-ISSUED: August 29, 2000

NTOR-INFORMATION:

CITY STATE ZIP CODE COUNTRY

ng; Yuan-Peng

Mountain View

CA

errer; Peter

Vancouver

CA

e; Michael J.

Vancouver

CA

L-CURRENT: 435/458; 264/4.1, 424/450, 424/93.2, 435/320.1, 435/325, 435/91.1, 435/91.31, 44, 536/23.1, 536/24.5

Full Tit	e Citation Fron	it Review	Classification	Date	Reference 2000 2000 (2000)	Claims	KWIC Dra	ou Desc	Image
20000000000000000000000000000000000000				***********************					
<b>1</b> 27.	Document ID	: US 609	0921 A						
B: Entry	27 of 57				File: USPT		.Tu	1 18,	2000
	2 / OI 3 /				TIIC. ODII		υu	т то,	2000

AT-NO: 6090921

MENT-IDENTIFIER: US 6090921 A

E: Process for purifying apolipoprotein a or apolipoprotein e

-ISSUED: July 18, 2000

NTOR-INFORMATION:

CITY ZIP CODE STATE COUNTRY

ge; Stefan Stockholm SE lund; Sara Skarpnack SE G-CL-CURRENT: 530/359; 530/380

Full Title Citation Front Review Classification Date Reference & United Factoring Claims KMC Draw Desc Image ☐ 28. Document ID: US 5998588 A L8: Entry 28 of 57 File: USPT Dec 7, 1999

S-PAT-NO: 5998588

OCUMENT-IDENTIFIER: US 5998588 A

\* See image for Certificate of Correction \*\*

ITLE: Interactive molecular conjugates

ATE-ISSUED: December 7, 1999

IVENTOR-INFORMATION:

AME CITY STATE ZIP CODE COUNTRY

offman; Allan S. Seattle WA tayton; Patrick S. Seattle WA

S-CL-CURRENT:  $\underline{530}/\underline{402}$ ;  $\underline{424}/\underline{178.1}$ ,  $\underline{424}/\underline{193.1}$ ,  $\underline{424}/\underline{280.1}$ ,  $\underline{424}/\underline{78.08}$ ,  $\underline{424}/\underline{94.1}$ ,  $\underline{530}/\underline{350}$ , 30/387.1, 530/391.1, 530/395, 530/399, 530/403, 530/404, 530/405, 530/406

ĺ	Full	Title	Citation	Front	Review	Classification	Date	Reference		44.34.34.34	Claims	KWMC	Drawi Desc	Image
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29. Document ID: US 5993851 A

L8: Entry 29 of 57

File: USPT Nov 30, 1999

S-PAT-NO: 5993851

CUMENT-IDENTIFIER: US 5993851 A

TLE: Method for preparing biphasic multilamellar lipid vesicles

TE-ISSUED: November 30, 1999

WENTOR-INFORMATION:

AΜE CITY STATE ZIP CODE COUNTRY oldvari; Marianna Saskatoon CA

-CL-CURRENT: 424/450; 264/4.1, 264/4.3, 264/4.32, 264/4.6, 424/1.21, 424/417, 424/85.7,

4/9.321, 424/9.51

☐ 30. Document ID: US 5990081 A

L8: Entry 30 of 57 File: USPT Nov 23, 1999

Full Title Citation Front Review Classification Date Reference Editornation Attributes Claims KWIC Draw Desc Image

-PAT-NO: 5990081

CUMENT-IDENTIFIER: US 5990081 A

TLE: Purified APO A and APO E compounds and methods for using them

TE-ISSUED: November 23, 1999

JENTOR-INFORMATION:

CITY

STATE

ZIP CODE

COUNTRY

eland; Hans

ME

Bromma

SE

mander; Lena

Nacka-Strand

SE

-CL-CURRENT: 514/2; 424/406, 435/69.1, 435/69.6, 514/20, 514/21, 530/359, 530/361, 530/402, 0/421, 530/427

Full Title Citation	Front Review	Classification	Date	Reference Stagement Madesman	Claims	KMC	Drawl Desc	Image

☐ 31. Document ID: US 5981194 A

L8: Entry 31 of 57

File: USPT

Nov 9, 1999

-PAT-NO: 5981194

CUMENT-IDENTIFIER: US 5981194 A

FLE: Use of p97 and iron binding proteins as diagnostic and therapeutic agents

TE-ISSUED: November 9, 1999

JENTOR-INFORMATION:

ME

CITY STATE ZIP CODE COUNTRY

fferies; Wilfred A. South Surrey CA Geer; Patrick L. Vancouver CA

thenberger; Sylvia Epalinges CH

od; Michael'R. Vancouver CA

mada; Tatsuo Tokyo JΡ nnard; Malcolm Vancouver CA

-CL-CURRENT: 435/7.1; 530/387.1

Fu	II Ti	le Citation	Front	Review	Classification	Date	Reference	28128 70 <b>30</b> 3	Claims	kwc	Draw Desc	Image
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32. Document ID: US 390/033 A

L8: Entry 32 of 57

File: USPT

May 25, 1999

PAT-NO: 5907035

'UMENT-IDENTIFIER: US 5907035 A

LE: Aqueous two-phase metal affinity partitioning protein purification system

-ISSUED: May 25, 1999

TOR-INFORMATION:

CITY

STATE

ZIP CODE

COUNTRY

n; Martin R.

Boulder

CO

L-CURRENT: 530/412; 530/380, 530/385

	Full <b>T</b> i	itle Citation Front	Review	Classification	Date	Reference	1.00	Claims	KMC	Draww Desc	Image
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☐ 33. Document ID: US 5882520 A											

3: Entry 33 of 57

File: USPT

Mar 16, 1999

AT-NO: 5882520

MENT-IDENTIFIER: US 5882520 A

ee image for Certificate of Correction \*\*

E: Use of arabinogalactan in aqueous two phase extractions

-ISSUED: March 16, 1999

NTOR-INFORMATION:

CITY

STATE

ZIP CODE

COUNTRY

ards; Geoffrey N.

Missoula

MT

ey-Harris; Merilyn

Missoula

MT

L-CURRENT: <u>210/623</u>; <u>210/634</u>, <u>210/639</u>, <u>252/364, 435/183, 435/267, 4</u>35/816

Full Titl	e   Citation   Front   Review   Classificatio	n Date Reference		Claims KWC	Draw. Desc   Image
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☐ 34.	Document ID: US 5879675 A				
B: Entry	34 of 57		Gile: USPT		Mar 9 1999

AT-NO: 5879675

MENT-IDENTIFIER: US 5879675 A

se image for Certificate of Correction \*\*

E: Compositions and methods for vaccines comprising .alpha.-galactosyl epitopes

-ISSUED: March 9, 1999

NTOR-INFORMATION:

CITY

STATE

ZIP CODE COUNTRY

li; Uri

Wayne

PΑ

k; Patricia M.

West Trenton

NJ

L-CURRENT: 424/93.1; 424/155.1, 424/156.1, 424/159.1, 424/184.1, 424/218.1, 424/277.1, 278.1, 424/816

Title Citation Front Review Classification Date Reference Search Communication Claims KMC Draw Desc Image ☐ 35. Document ID: US 5853755 A Dec 29, 1998 **∟8: Entry 35 of 57** File: USPT PAT-NO: 5853755 UMENT-IDENTIFIER: US 5853755 A LE: Biphasic multilamellar lipid vesicles E-ISSUED: December 29, 1998 ENTOR-INFORMATION: CITY STATE ZIP CODE COUNTRY dvari; Marianna Saskatoon CA CL-CURRENT: <u>424/450</u>; <u>264/4.1</u>, <u>264/4.3</u>, <u>264/4.32</u>, <u>264/4.6, 424/1.21, 424/417</u>, 424/9.321,  $\frac{9.51}{428}$ Full Title Citation Front Review Classification Date Reference Claims KMC Draw Desc Image ☐ 36. Document ID: US 5723310 A L8: Entry 36 of 57 File: USPT Mar 3, 1998 PAT-NO: 5723310 UMENT-IDENTIFIER: US 5723310 A See image for <u>Certificate of Corre</u>ction \*\* LE: Aqueous multiple-phase isolation of polypeptide E-ISSUED: March 3, 1998 ENTOR-INFORMATION: ΙE CITY STATE ZIP CODE COUNTRY lder; Stuart Belmont CA t; Roger Burlingame CA ter; Philip San Lorenzo CA z; John Redwood City CA fsnyder; David San Mateo CA CL-CURRENT: <u>435/69.1</u>; <u>435</u>/<u>70.1</u>, <u>435/803</u>, <u>435/804</u>, <u>530/399</u>, <u>5</u>30/402, 530/422 Full Title Citation Front Review Classification Date Reference Sections Attachments Claims KMC Draw Desc Image

☐ 37. Document ID: US 5705385 A

8: Entry 37 of 57

File: USPT

Jan 6, 1998

PAT-NO: 5705385

JMENT-IDENTIFIER: US 5705385 A

E: Lipid-nucleic acid particles prepared via a hydrophobic lipid-nucleic acid complex

ermediate and use for gene transfer

C-ISSUED: January 6, 1998

CNTOR-INFORMATION:

CITY STATE ZIP CODE COUNTRY

ly; Marcel B. Bowen Island CA

ng; Yuan-Peng Vancouver CA

mer; Dorothy L. Vancouver CA

eler; Jeffery J. Richmond CA

CL-CURRENT: 435/320.1; 264/4.1, 536/23.1

Full Tit	le Citation Front	Review Classification	Date Rei	eteuce		Claims	KWIC I	Drawu Desc	Image
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口 38.	Document ID:	US 5695760 A			2				
8: Entry	38 of 57			File: US	PT			Dec 9,	1997

PAT-NO: 5695760

MENT-IDENTIFIER: US 5695760 A

E: Modified anti-ICAM-1 antibodies and their use in the treatment of inflammation

-ISSUED: December 9, 1997

CNTOR-INFORMATION:

CITY STATE ZIP CODE COUNTRY

nes; Ronald Bertrand Pound Ridge NY off; Paul Edward Watertown CTrley; Bret Allen New Milford CT er; David Stuart

Danbury

'L-CURRENT: 424/178.1; 424/181.1, 530/388.85, 530/391.1

Full Tit	le Citation F	ront Review	Classification	Date	Reference	5750 p	in 1717-19	Claims	KWC	Draww Desc	Image
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口 39.	Document 1	D: US 556	7567 A								
8: Entry	39 of 57				Fil	e: USPT				Oct 22.	1996

AT-NO: 5567567

MENT-IDENTIFIER: US 5567567 A

Oct 22, 1996

ITLE: Method for producing encapsulated toner for heat-and-pressure fixing and encapsulated oner obtained thereby

ATE-ISSUED: October 22, 1996

VVENTOR-INFORMATION:

AME

CITY STATE ZIP CODE COUNTRY

kiyama; Koji Wakayama JΡ amaguchi; Takashi Arida JP

ameyama; Koji Wakayama-ken JP

himokusa; Koji Wakayama JP

S-CL-CURRENT: 430/110.2

Full	Tit	e Citation Fron	Review	Classification	Date	Reference		Claims	KWIC	Drawi Desc	Image
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	40.	Document ID:	US 540	7810 A			•				

L8: Entry 40 of 57 File: USPT Apr 18, 1995

S-PAT-NO: 5407810

OCUMENT-IDENTIFIER: US 5407810 A

ITLE: Aqueous multiple-phase isolation of polypeptide

ATE-ISSUED: April 18, 1995

**VENTOR-INFORMATION:** 

AME CITY STATE ZIP CODE COUNTRY

uilder; Stuart Belmont · CA

art; Roger Burlingame CA ester; Philip San Lorenzo CA qez; John Redwood City

CA eifsnyder; David San Mateo CA

G-CL-CURRENT: 435/69.1; 435/804, 530/399, 530/412, 530/422, 530/808

Full *	itle Citation	Front	Review	Classification	Date	Reference	5 (19.5)	Claims	KWIC	Drawl Desc	Image
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□ 41.	Documer	at ID.	110 524	4802 A							

File: USPT

S-PAT-NO: 5244803

L8: Entry 41 of 57

OCUMENT-IDENTIFIER: US 5244803 A

TLE: Process for preparing optically active 3-phenylglycidic acid esters

ATE-ISSUED: September 14, 1993

Sep 14, 1993

VENTOR-INFORMATION:

CITY STATE ZIP CODE COUNTRY ME Takatsuki JΡ ori; Takao ırutani; Toshiyuki Osaka JP akao; Akio Osaka JP sujimura; Atsuhiko Takatsuki JP nibatani; Takeji

Kobe

-CL-CURRENT: 435/280; 435/123, 435/824, 435/832, 435/840, 435/843, 435/850, 435/859, 435/863, <u>5/874</u>, <u>435/878</u>, <u>435/910</u>, <u>435/921</u>, <u>435/938</u>, <u>540/491</u>

Fu	l Tit	le Citation	Front	Review	Classification	Date	Reference		Claims	KWC	Drawi Desc	Image
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	42.	Documen	nt ID:	US 519	6470 A						•	

L8: Entry 42 of 57

File: USPT

Mar 23, 1993

JΡ

-PAT-NO: 5196470

CUMENT-IDENTIFIER: US 5196470 A

TLE: Water soluble alcohol based nonwoven binder for water swellable, soluble or sensitive bers

TE-ISSUED: March 23, 1993

VENTOR-INFORMATION:

CITY

STATE

ZIP CODE

COUNTRY

nderson; Stewart C.

Eden Prairie

MN

almsten; Richard

Vadnais Heights

MN

-CL-CURRENT: 524/379; 524/388, 524/389, 528/489

Full Ti	tle Citation I	Front R	eview Classification	Date	Reference	27.44.7	0.00	Claims	KWMC	Draw, Desc	Image
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					***						***************************************
☐ <b>43</b> .	Document	ID: US	S 4634540 A								
L8: Entry	43 of 57				F	ile: USPT				Jan 6.	1987

-PAT-NO: 4634540

CUMENT-IDENTIFIER: US 4634540 A

TLE: Composition and method for modifying and augmenting recovery of hydrocarbons from drocarbon-bearing formations

TE-ISSUED: January 6, 1987

**VENTOR-INFORMATION:** 

ME

CITY

STATE

ZIP CODE

COUNTRY

ppp; Richard C.

Warren

NJ

07060

-CURRENT: 507/266; 166/270, 208/143, 507/269, 507/271, 507/273, 507/935

Full Title Citation Front Review Classification Date Reference September 7/116 pinests. Claims KMC Draw. Desc Image 44. Document ID: US 4539235 A File: USPT Sep 3, 1985 : Entry 44 of 57

T-NO: 4539235

ENT-IDENTIFIER: US 4539235 A

: Method for treating wood

ISSUED: September 3, 1985

TOR-INFORMATION:

CITY

STATE ZIP CODE COUNTRY

ıns; Albert V.

Fairview Park

OH

s; Richard W.

Lakewood

OH

-CURRENT: 427/440; 106/18.31, <u>106/18.35, 428/541, 514/494, 514/496, 514/4</u>98, 514/502, 03, 514/505, <u>514</u>/89

☐ 45. Document ID: US 4507152 A	
7 45. Document ID: US 4507152 A	
43. DOCUMENTD. US 430/132 A	वेतरीय सम्पर्धानीय वीत्राप्ति । इत्यासम्पर्धानम् वर्षः व
No.	i, 1985

2: Fungicidal and insecticidal compositions for treating wood

ISSUED: March 26, 1985

TOR-INFORMATION:

CITY .

STATE ZIP CODE COUNTRY

ins; Albert V. s; Richard W.

Fairview Park

OH

Lakewood OH

-CURRENT: <u>106/18.31</u>; <u>106/18.35</u>, <u>514/494</u>, <u>514/496</u>, <u>514/498</u>, <u>514/502, 514/503, 514/</u>505, 39

Full Title Citation Front Review Classification Date Reference Societies Attachnesis Claims KWIC Draw Desc Image

46. Document ID: US 4443357 A

: Entry 46 of 57

File: USPT

Apr 17, 1984

T-NO: 4443357

ENT-IDENTIFIER: US 4443357 A

e image for Certificate of Correction \*\*

: Hydrophobic silica or silicate, compositions containing the same and methods for making

sing the same

ISSUED: April 17, 1984

TOR-INFORMATION:

CITY

STATE

ZIP CODE

COUNTRY

ney; James E.

Eagan

MN

; Thomas R.

Stillwater

MN

-CURRENT: <u>516/117</u>; <u>106/491</u>, <u>162/158</u>

Full	Title	Citation	Front	Review	Classification	Date	Reference	275755	A MARINTON	Claims	KWIC	Draw Desc	Image
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☐ 47. Document ID: US 4248698 A

: Entry 47 of 57

File: USPT

Feb 3, 1981

T-NO: 4248698

7240000

ENT-IDENTIFIER: US 4248698 A

e image for Certificate of Correction \*\*

: Coal recovery process

ISSUED: February 3, 1981

TOR-INFORMATION:

CITY

STATE

ZIP CODE COUNTRY

r, Jr.; Douglas V.

Lafayette

NY

-CURRENT: 44/551; 209/5, 241/15, 241/16, 44/556, 44/574, 44/595, 44/624

Full '	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Drawi Desc	Image
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48. Document ID: US 3988261 A

: Entry 48 of 57

File: USPT

Oct 26, 1976

T-NO: 3988261

ENT-IDENTIFIER: US 3988261 A

e image for Certificate of Correction \*\*

: Frozen organic peroxide emulsion

ISSUED: October 26, 1976

FOR-INFORMATION:

ZIP CODE COUNTRY CITY STATE

er; James A. Akron ОН ens; Henry C. Akron OH Hoozer; John F.

Bethel Park PA

J-CURRENT: 502/160; 252/186.26, 526/202, 526/348

Full	Title	Citation	Front	Review	Classificatio	on Date	Reference	1000	5,8	Claims	KMIC	Draw Desc	Image
••••													

49. Document ID: NZ 514891 A, WO 200058342 A1, AU 200035621 A, EP 1163260 A1, NO 200104534 A, KR 2001108400 A, CN 1357005 A, JP 2002543766 W

: Entry 49 of 57

File: DWPI

Oct 31, 2003

NT-ACC-NO: 2000-686858

NT-WEEK: 200380

RIGHT 2004 DERWENT INFORMATION LTD

: Isolation and purification of proteins or cells in aqueous two-phase systems, comprises ning a desired protein or a cell to a targeting protein capable of isolating the protein. ell into one of the phases

ITOR: FAGERSTROEM, R; KULA, M ; LINDER, Mू; NAKARI-SETAELAE, T ; PENTTILAE, M ; SELBER, K ; IELD, F ; FAGERSTROM, R ; NAKARI-SETALA, T ; PENTTILA, M

RITY-DATA: 1999FI-0001782 (August 20, 1999), 1999FI-0000667 (March 25, 1999)

T-FAMILY:

40	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
14891 A	October 31, 2003		000	C07K001/14
00058342 A1	October 5, 2000	E	109	C07K001/14
00035621 A	October 16, 2000		000	C07K001/14
163260 A1	December 19, 2001	E	000	C07K001/14
00104534 A	November 26, 2001		000	C07K000/00
001108400 A	December 7, 2001		000	C07K001/20
357005 A	July 3, 2002		000	C07K001/14
002543766 W	December 24, 2002		112	C12N015/09

 $^{\circ}$ L (IPC):  $\underline{\text{B01}}$   $\underline{\text{D}}$   $\underline{\text{17}}/\underline{\text{025}}$ ;  $\underline{\text{B01}}$   $\underline{\text{D}}$   $\underline{\text{17}}/\underline{\text{038}}$ ;  $\underline{\text{C07}}$   $\underline{\text{K}}$   $\underline{\text{0}}/\underline{\text{00}}$ ;  $\underline{\text{C07}}$   $\underline{\text{K}}$   $\underline{\text{1}}/\underline{\text{14}}$ ;  $\underline{\text{C07}}$   $\underline{\text{K}}$   $\underline{\text{1}}/\underline{\text{20}}$ ;  $\underline{\text{C07}}$   $\underline{\text{K}}$  14/37;  $\underline{\text{C07}}$  $\underline{00}; \ \underline{C12} \ \underline{N} \ \underline{1/15}; \ \underline{C12} \ \underline{N} \ \underline{1/19}; \ \underline{C12} \ \underline{N} \ \underline{1/21}; \ \underline{C12} \ \underline{N} \ \underline{5/10}; \ \underline{C12} \ \underline{N} \ \underline{9/24}; \ \underline{C12} \ \underline{N} \ \underline{15/09}; \ \underline{C12} \ \underline{N} \ \underline{15/62};$ <u>21/02; C12 R 1:885</u>

Full	Title	Citation	Front	Review	Classification	Date	Reference	77	( ( ) ( ) ( ) ( ) ( ) ( )	Claims	KWIC	Drawi Desc	Image
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50. Document ID: US 3814706 A

: Entry 50 of 57

File: USOC

Jun 4, 1974

T-NO: 3814706

ENT-IDENTIFIER: US 3814706 A

Mar 19, 1974

E: SILICONE RESINS USED AS SURFACTANTS IN VINYL CHLORIDE FOAM

-ISSUED: June 4, 1974

NTOR-NAME: HOLDSTOCK N; MOELLER R ; SIMONEAU E

L-CURRENT: <u>521/74</u>, <u>264/50</u>, <u>516/23</u>, <u>516/DIG.6</u>, <u>521/134</u>, <u>521/86</u>, <u>521/88</u>, <u>521/911</u>, <u>524/145</u>, <u>285</u>, <u>524/297</u>, <u>524/321</u>, <u>524/569</u>, <u>525/104</u>, <u>528/10</u>, <u>528/32</u>, <u>528/42</u>, <u>528/43</u>

Fu	Tit	le Citation	Front	Review	Classification	Date	Reference	-1	Claims	KWIC	Drawi Desc	Image
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	51.	Documen	t ID:	US 379	8189 A							

File: USOC

AT-NO: 3798189

MENT-IDENTIFIER: US 3798189 A

8: Entry 51 of 57

E: SILICONE RESINS USED AS SURFACTANTS IN VINYL CHLORIDE FOAM

-ISSUED: March 19, 1974

NTOR-NAME: HOLDSTOCK N; MOELLER R ; SIMONEAU E

L-CURRENT: 521/74, 264/50, 516/23, 516/DIG.6, 521/134, 521/145, 521/86, 521/911, 524/297, 569, 525/104, 528/10, 528/32, 528/43

Full Titl	e Citation Fro	nt Review	Classification	Date	Reference	7.		Claims	KWIC	Drawu Desc	Image
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<b>52.</b>	Document ID	): US 375	6992 A								
: Entry	52 of 57				F	ile: USOC				Sep 4,	1973

AT-NO: 3756992

MENT-IDENTIFIER: US 3756992 A

E: POLYURETHANE POLYELECTROLYTES AND PROCESS FOR PREPARING SAME

-ISSUED: September 4, 1973

NTOR-NAME: DIETERICH D

L-CURRENT: <u>524/591</u>; <u>156/331.7</u>, <u>521/162</u>, <u>521/163</u>, <u>521/170</u>, <u>521/65</u>, <u>525/428</u>, <u>525/440</u>,

453, 525/456

Fu	II Tit	le Citation Fi	ront	Review	Classification	Date	Reference	- Logical	-Anterson early	Claims	KWC	Draw Desc	Image
П	53.	Document I	D: U	JS 356	7512 A			,					

B: Entry 53 of 57

File: USOC

Mar 2, 1971

S-PAT-NO: 3567512

CUMENT-IDENTIFIER: US 3567512 A

TLE: PROCESS FOR THE PURIFICATION OF SUGAR BEET DIFFUSION JUICE

ATE-ISSUED: March 2, 1971

IVENTOR-NAME: LYONS JOHN W; MILES CHARLES E

S-CL-CURRENT: 127/48, 127/50, 426/648

Full Tit	e Citation Front Review	Classification Dat	e Reference		Claims KW	MC   Drawn Desc	Image
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<b>54.</b>	Document ID: US 3491	1061 A					
L8: Entry	54 of 57		File	: USOC		Jan 20.	1970

S-PAT-NO: 3491061

CUMENT-IDENTIFIER: US 3491061 A

TLE: BUFFERING AGENTS IN INTERFACIAL PHOSPHORUS POLYESTER PROCESS

ATE-ISSUED: January 20, 1970

VENTOR-NAME: MILLICH FRANK; CARRAHER CHARLES E

S-CL-CURRENT: 528/169, 528/168, 528/223, 528/399, 528/400

Full Title Citation Front Review Cla	ssification Date Reference Security 25 Miles	Claims KMC Draw Desc Image
☐ 55. Document ID: US 328872	29 A	
L8: Entry 55 of 57	File: USOC	Nov 29, 1966

S-PAT-NO: 3288729

CUMENT-IDENTIFIER: US 3288729 A

TLE: Open-cell polyvinyl chloride foam

ATE-ISSUED: November 29, 1966

IVENTOR-NAME: DEAL KENNETH M; WHITMAN PETER A ; WATERMAN RAYMOND R

-CL-CURRENT: 521/74, 264/50, 264/DIG.13, 264/DIG.60, 521/145, 521/82, 521/88, 521/911, 1/93, 524/143, 524/292, 524/296, 524/317, 524/394, 524/397, 987/209

Full Title C	itation Front	Review Classi	fication Date	Reference	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	e e Claims	KWMC   Draw Desc	Image
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☐ 56. Document ID: US 2834052 A

L8: Entry 56 of 57

File: USOC

May 13, 1958

Feb 28, 1956

S-PAT-NO: 2834052

CUMENT-IDENTIFIER: US 2834052 A

TTLE: Method of making mold masters

ATE-ISSUED: May 13, 1958

VENTOR-NAME: HUNN JAMES V

S-CL-CURRENT: <u>205/70</u>; <u>264/227</u>, <u>264/DIG.60</u>, 425/DIG.29

Full Title Citation Front Review Classification Dat	e Reference September 2005	Claims KWC Draw Desc Image
	•	
☐ 57. Document ID: US 2736669 A		
L8: Entry 57 of 57	File: USOC	Feb 28, 1956

S-PAT-NO: 2736669 CUMENT-IDENTIFIER: US 2736669 A

TLE: Method of activating and esterifying the surface of finely divided particles of silica

ving surface silanol groups

TE-ISSUED: February 28, 1956

VENTOR-NAME: GOEBEL MAX T

-CL-CURRENT:  $\underline{427}/\underline{220}$ ;  $\underline{106}/\underline{481}$ ,  $\underline{106}/\underline{490}$ ,  $\underline{252}/\underline{384}$ ,  $\underline{427}/\underline{314}$ 

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SURFACTANT	238723
SURFACTANTS	153087
AMPHIPHILIC	9176
AMPHIPHILICS	23
AQUEOUS	996521
AQ	305869
ГWO	7609536
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rwos	3240
TWOE	349

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CHIMER\$)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	

There are more results than shown above. Click here to view the entire set.

<b>Display Format:</b>	-	Change Format

Previous Page Next Page Go to Doc#

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E: Tuesday, May 25, 2004

<u>Set</u> Name	Query	<u>Hit</u> Count
DB=PC	GPB,USPT,EPAB,DWPI,TDBD; THES=ASSIGNEE; PLUR=YES; OP=ADJ	
L9	hydrophob\$ and (fusion or chimer\$)same aqueous adj two adj phase\$	8
L8	hydrophobin? and aqueous adj two adj phase\$	1
L7	hydrophobin? and (fusion or chimer\$) and aqueous adj two adj phase\$	1
L6	hydroph\$ same fusion and aqueous adj two adj phase\$	6
L5	hydroph\$ and aqueous adj two adj phase\$	192
L4	hydroph\$ same protein? same ((fusion or chimer\$) same (protein? or polypeptide?)) and aqueous same two same phase\$	88
L3	hydroph\$ same protein? and ((fusion or chimer\$) same (protein? or polypeptide?)) and aqueous same two same phase\$	391
L2	hydroph\$ and aqueous same two same phase\$	9621
L1	hydroph\$ same ((fusion or chimer\$) same (protein? or polypeptide?)) same two same phase\$	7

OF SEARCH HISTORY

## **Hit List**

Clear Generate Collection Print : Fwd Refs **Bkwd Refs** Generate OACS

**Search Results -** Record(s) 1 through 6 of 6 returned.

1. Document ID: US 20040092727 A1

ig default format because multiple data bases are involved.

6: Entry 1 of 6

File: PGPB

May 13, 2004

Aug 21, 2003

JB-DOCUMENT-NUMBER: 20040092727

JB-FILING-TYPE: new

JMENT-IDENTIFIER: US 20040092727 A1

LE: Cochleates without metal cations as bridging agents

LICATION-DATE: May 13, 2004

ENTOR-INFORMATION:

, Tuo

CITY

STATE

COUNTRY

RULE-47

Highland Park

NJ

US

CL-CURRENT: 534/15

Fu	11	Title Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWMC	Draw, Desc	Image
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	2.	Document	ID: U	JS 2003	0157070 A	1							

File: PGPB

JB-DOCUMENT-NUMBER: 20030157070

JB-FILING-TYPE: new

6: Entry 2 of 6

JMENT-IDENTIFIER: US 20030157070 A1

E: High efficiency ex vivo transduction of cells by high titer recombinant retroviral parations

ICATION-DATE: August 21, 2003

CNTOR-INFORMATION:

CITY

STATE

COUNTRY

RULE-47

ly, Douglas J.

Leucadia

CA

US

CL-CURRENT: 424/93.21; 435/372, 435/455, 435/456

Title Citation Front Review Classification Date Reference Sequences Attachments Claims KMC Draw Desc Image

### ☐ 3. Document ID: US 6433147 B1

L6: Entry 3 of 6

File: USPT

Aug 13, 2002

S-PAT-NO: 6433147

OCUMENT-IDENTIFIER: US 6433147 B1

\* See image for Certificate of Correction \*\*

ITLE: Death domain containing receptor-4

ATE-ISSUED: August 13, 2002

#### VVENTOR-INFORMATION:

AME	CITY	STATE	ZIP CODE	COUNTRY
i; Jian	Rockville	MD		
osen; Craig A.	Laytonsville	MD		
an; James G.	Belmont	CA		
entz; Reiner L.	Rockville	MD		
ixit; Vishva M.	Los Altos Hills	CA		

S-CL-CURRENT: <u>530/387.3</u>; <u>424/178.1</u>, <u>435/252.3</u>, <u>435/254.11</u>, <u>435/325</u>, 435/69.1, 530/300, 30/350, 530/402, 536/23.1, 536/23.5

Full	Т	itle Citation	Front	Review	Classification	Date	Reference		Claims	KWIC	Drawu Desc	Image
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	4.	Document	ID: U	JS 5614	409 A							

L6: Entry 4 of 6

File: USPT

Mar 25, 1997

S-PAT-NO: 5614409

OCUMENT-IDENTIFIER: US 5614409 A

ITLE: Production of IBDV VP2 in highly immunogenic form

ATE-ISSUED: March 25, 1997

#### VENTOR-INFORMATION:

AME	CITY	STATE	ZIP CODE	COUNTRY
zad; Ahmed A.	Lower Templestowe			AU
acreadie; Ian G.	Templestowe			AU
cKern; Neil M.	Lilydale			AU
aughan; Paul R.	Rowville			AU
agadish; Mittur N.	Gladstone Park			AU
ahey; Kevin J.	Templestowe	,		AU
hapman; Antony J.	Murrumbeena	ν.		AU
eine; Hans-Georg	Coburg			AU

S-CL-CURRENT: 435/252.3; 424/192.1, 424/204.1, 435/320.1, 435/69.3, 530/395, 530/403,  $\frac{36}{23.4}$ ,  $\frac{536}{23.72}$ 

Full Title Citation Front R	eview Classification Date R	eference 3 4 4 4 4		Claims	KMC   Draw Desc   Image	j
☐ 5. Document ID: US	5304310 A	от на при на На при на пр			-	1947.000
L6: Entry 5 of 6		File: USPT		•	Apr 19, 1994	
-PAT-NO: 5304310 CUMENT-IDENTIFIER: US 530	4310 A					
TLE: Method for concentra	ting and purifying h	nirudin from le	eches			
TE-ISSUED: April 19, 1994						•
VENTOR-INFORMATION:						
AME	CITY	STATE	ZIP	CODE	COUNTRY	
ang; Kurt	Penzberg				DE	
reimeyer; Andreas	Roemerberg				DE	

6. Document ID: NZ 514891 A, WO 200058342 A1, AU 200035621 A, EP 1163260 A1, NO 200104534 A, KR 2001108400 A, CN 1357005 A, JP 2002543766 W

L6: Entry 6 of 6

File: DWPI

Oct 31, 2003

RWENT-ACC-NO: 2000-686858

RWENT-WEEK: 200380

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-CL-CURRENT: 210/639; 424/550, 514/21, 530/344, 530/855

Full Title Citation Front Review Classification Date Reference

TLE: Isolation and purification of proteins or cells in <u>aqueous two-phase</u> systems, comprises mbining a desired protein or a cell to a targeting protein capable of isolating the protein cell into one of the phases

VENTOR: FAGERSTROEM, R; KULA, M ; LINDER, M ; NAKARI-SETAELAE, T ; PENTTILAE, M ; SELBER, K ; ERNELD, F ; FAGERSTROM, R ; NAKARI-SETALA, T ; PENTTILA, M

IORITY-DATA: 1999FI-0001782 (August 20, 1999), 1999FI-0000667 (March 25, 1999)

TENT-FAMILY:

JB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
Z 514891 A	October 31, 2003		000	C07K001/14
) 200058342 A1	October 5, 2000	E	109	C07K001/14
J 200035621 A	October 16, 2000		000	C07K001/14
P 1163260 A1	December 19, 2001	Е	000	C07K001/14
) 200104534 A	November 26, 2001		000	C07K000/00
R 2001108400 A	December 7, 2001		000	C07K001/20
J 1357005 A	July 3, 2002		000	C07K001/14
P 2002543766 W	December 24, 2002		112	C12N015/09

CL (IPC): <u>B01</u> <u>D</u> <u>17/025</u>; <u>B01</u> <u>D</u> <u>17/038</u>; <u>C07</u> <u>K</u> <u>0/00</u>; <u>C07</u> <u>K</u> <u>1/14</u>; <u>C07</u> <u>K</u> <u>1/20</u>; <u>C07</u> <u>K</u> <u>14/37</u>; <u>C07</u> <u>O0</u>; <u>C12</u> <u>N</u> <u>1/15</u>; <u>C12</u> <u>N</u> <u>1/19</u>; <u>C12</u> <u>N</u> <u>1/21</u>; <u>C12</u> <u>N</u> <u>5/10</u>; <u>C12</u> <u>N</u> <u>9/24</u>; <u>C12</u> <u>N</u> <u>15/09</u>; <u>C12</u> <u>N</u> <u>15/62</u>; <u>C1/02</u>; <u>C12</u> <u>R</u> 1:885

Full	Title	Citation	Front	Review	Classification	Date	Reference	2	Set Set	13016-016	Claims	KMC	Draw, Desc	Image
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